

## STUDIES ON AUSTRALIAN MOLLUSCA.

## PART V.

(Continued from page 25.)

BY C. HEDLEY, F.L.S.

(Plate xxxiv.)

## DAPHNELLA TASMANICA, T. Woods.

A confusion between *D. tasmanica*, T. Woods (P.R.S.Tas. 1877, p. 138) and *Cithara tasmanica*, T. Woods (P.R.S.Tas., 1875, p. 145) caused me to erroneously state (these Proceedings, 1900, p. 725) that Pritchard & Gatliff had united *Mangilia jacksonensis* with the former, whereas it was with the latter that they have correctly identified it.

## AMAUROPSIS MOERCHI, Adams &amp; Angas.

(Plate xxxiv., figs. 19, 20.)

In the first part of these Studies, I gave a figure of what I believed to be this species, but which I now withdraw. My identification was, as Dr. Dall, Prof. Tate and other correspondents pointed out to me, a generic error. Mr. Brazier has since furnished me with two examples of *A. moerchi*, one from a point four miles north of Ballina, N.S.W., the other from Double Bay, Sydney Harbour. The Ballina specimen, represented in my figure, though slightly broken, is 11 mm. long. From the Sydney shell I have derived the operculum (fig. 20), and by its help have slightly "restored" the shell.

## MUREX PLANILIRATUS, Reeve.

Reeve, Conch. Icon. iii., Murex, pl. xxxi., sp. 149, 1845.

In my opinion the species described by Brazier as *Murex polypleurus*\* should be reduced to a synonym of this. Apparently

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\* Brazier, these Proceedings, (2) viii. p. 179, 1894, text figure.

the same species is recorded by Menke\* as *Fusus pallidus*, Broderip, from Western Australia. Since Broderip stated† that his species came from the Falkland Islands, the identification of Menke seems improbable.

SCALARIA BALLINENSIS, Smith.

Smith, Ann. Mag. Nat. Hist. (6) vii., 1891, p. 139.

(Plate xxxiv., fig. 21.)

Four specimens collected near Ballina, N.S.W., by Mr. J. Brazier, furnished Mr. Smith with the means of describing this species; the burden of illustrating it he left for others. A series, the original lot from which Mr. Smith was supplied, has lately reached me. Their examination convinces me that *S. ballinensis* is a synonym of the common, widespread and variable *Scala granosa*, Quoy & Gaimard. A smooth state appears to have been studied by Smith. My figure is based on a well sculptured Ballina shell, 15 mm. long.

TURBO EXQUISITUS, Angas.

Angas, P.Z.S., 1877, p. 175, pl. xxvi., f. 18.

(Plate xxxiv., fig. 7.)

No mention has been made of the operculum of this species. I find that externally it is white, microscopically granulated, with a thick raised spiral rib of three revolutions. This feature indicates a relationship between it, *T. gruneri* and *T. stamineus*. The specimen, from the Sow and Pigs Reef, containing the operculum here figured, is much larger than that Angas described, being 19 mm. in length, 17 mm. in major diameter, and 15 mm. in minor diameter.

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\* Menke, Moll. Nov. Holl. Spec. 1843, p. 26.

† Broderip, Proc. Zool. Zoc. 1832, p. 194.

## COLUMBELLA PLEXA, n.sp.

(Fig. 25.)

Shell small, clathrate, bluntly fusiform, a little contracted at the base, polished, semi-diaphanous but rather solid. Colour pale

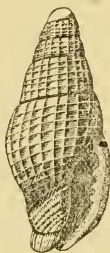


Fig. 25.

brown, suddenly changing to darker on the base. Including a smooth globose, two-whorled protoconch, the whorls are five, flattened, parted by a channelled suture, the last twice the length of the spire. Sculpture: about twenty close narrow regular sharp longitudinal ribs descend the shell perpendicularly, continuing after each sutural gap from whorl to whorl and vanishing gradually on the base; the interstices of these longitudinals are interwoven by finer, closer and less prominent spiral cords, which extend past the longitudinals to the anterior extremity, numbering 14 on the last whorl and 5 on the spire. Aperture slightly ascending, not thickened externally, narrow, perpendicular, denticulated within by several (3-5) entering ridges. Canal short, recurved. Length 4.5, breadth 1.7 mm.

*Hab.*—Ladies' Hall Beach, near South Head, Sydney Harbour; two specimens (H. L. Kesteven).

Type to be presented to the Australian Museum.

To the kindness of H. L. Kesteven I owe both the opportunity of describing this species and the excellent drawing which illustrates it. The present is readily known from any other small Australian *Columbella* by the reticulate sculpture.

## HALIOTIS SEMPLICATA, Menke.

Menke, Moll. Nov. Holl. Spec. 1843, p. 32.

This rare West Australian shell has not been recognised by any succeeding writer. Tate in his review of Menke's shells passes it without comment.\* Pilsbry consigns it to the list of unidentified species.†

\* Tate, Proc. Linn. Soc. N.S.W., vi., p. 401, 1882.

† Pilsbry, Man. Conch. xii., 1890, p. 126.

Mr. A. U. Henn collected on the Cottesloe Beach, about four miles north of Fremantle, W.A., and sent to me a shell which I have identified with this long lost species. Further, it seems to me certain that *Haliotis lauta*, Reeve,\* collected by Lieut. Preston at the "Swan River Settlement," is the same as Menke's species. I note that though Reeve's figure is the exact length given by Menke for *H. semiplicata*, yet it is 4·5 mm. narrower than the breadth of *H. semiplicata*. As the specimen from Cottesloe is of broader proportions than Reeve's illustration, I attach no importance to this discrepancy.

PUNCTURELLA GALERITA, n.sp.

(Fig. 26.)

Shell elevated, small but rather solid, summit overhanging the base, posterior side incurved, anterior steeply sloped. Colour



Fig. 26.

dull white (bleached?). Sculpture: about 20 low spiral ribs arise by interstitial growth, broaden rapidly, denticulate the margin and imprint the interior, the posterior rib dominating its fellows; indistinct growth-striae cross the ribs and their narrow interstices; the whole surface is granulate. The apex is inrolled, of at least one whorl, vertical, with a median sinus. The perforation is a narrow slit, taking the place of two furrows and the posterior rib on the crown of the shell. The interior shelf stretches far down. Aperture oval. Height 2 mm. Aperture 2·2 by 1·6 mm.

*Hab.*—Darnley Island, Torres Straits (Chevert Expedition).

Type in the Macleay Museum.

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\* Reeve, Conch. Icon. iii. Haliotis, Pl. xvii., sp. 68, July, 1846.

Since writing the above I have taken this species in 15 fathoms off the Palm Islands and have seen examples gathered at Bundaberg by Dr. T. H. May. Probably this, not *P. kesteveni*, was the unnamed species collected by the Challenger in Torres Straits.

PHILINE TRAPEZIA, n.sp.

(Plate xxxiv., figs. 22, 23, 24.)

Shell minute, thin, diaphanous, trapezoidal, the base meeting the side at almost a right angle, with a narrow umbilical groove. Colour pale yellow. Sculpture: spire puckered into a few coarse longitudinal ridges, the remainder of the shell densely covered with close fine raised spiral lines, parted by interstices of equal breadth; on high magnification the raised lines develop into chains (fig. 24). The lower columella follows a C curve; above the umbilical groove it stands out from the whorl as a wavy ridge, terminating posteriorly in a sharp transverse callous ledge. The spire is plane, of two whorls separated by a deeply channelled suture; the apex is immersed. Length 1.9, breadth 1.3 mm.

*Hab.*—Off Shark Point, Sydney Harbour; 12 fathoms, on a bottom of mud and weed (J. Brazier).

Type to be presented to the Australian Museum.

This species is apparently allied to the British *P. scabra*, Müller. Probably *Scaphander multistriatus*, Brazier (these Proceedings, 1900, p. 510) should follow this into *Philine*.

MARINULA PATULA, Lowe.

(Plate xxxiv., fig. 18.)

The synonymy of this species is given by Tate & May (*ante*, p. 419). Mr. Brazier tells me that he was informed by Mr. A. E. Smith that *Auricula cymbaeformis*, Recluz (Pfeiffer, Mon. Auric. p. 63) also belongs here. As the only illustration of this shell is in a rare work not generally accessible to students, I add a drawing of an old and incrassate specimen from Middle Harbour, 10.5 mm. in length.

## FLAMMULINA SPALDINGI, Brazier.

Brazier, Proc. Linn. Soc. N.S.W., i., 1876, p. 103.

(Plate xxxiv., figs. 9, 10, 11.)

These drawings are taken from a specimen collected by Mr. Brazier at Bet Island, Torres Straits, which measures, height 2·1, major diameter 4, minor diameter 3·6 mm.

## F. SPALDINGI var. CARINATA, Brazier.

Brazier, Proc. Linn. Soc. N.S.W., iv., 1880, p. 393.

(Plate xxxiv., fig. 8.)

To the same scale as the above is drawn an example of this marked variety from Thursday Island.

## TORNATELLINA MASTERSI, Brazier.

Brazier, Proc. Linn. Soc. N.S.W., i., 1876, p. 108.

(Plate xxxiv., figs. 13, 14.)

One of the types from Darnley Island, 2·9 mm. in length, is shown at fig. 14. An example of *T. petterdi*, Brazier (*op. cit.* p. 109) from No. iii. Barnard Islands, 2·7 mm. long, is represented by fig. 13. It seems to me an immature state of the same species. *T. grenvillei*, Brazier (*op. cit.* p. 109) appears from a study of the types also to be identical with *T. mastersi*. To this species belongs also a *Tornatellina* from Boyne Island, and Warroo, Queensland, identified\* as *T. eucharis*.

The double twist on the columella distinguishes this from the very similar *T. oblonga*, Pease, of the Central Pacific. *T. jacksonensis*, Cox, is a more slender shell.

## TORNATELLINA EUCHARIS, Brazier.

Brazier, Proc. Linn. Soc. N.S.W., i., 1876, p. 110.

(Plate xxxiv., fig. 12)

One of the two type specimens from No. iii. Barnard Islands, 2·5 mm. long, is here shown. I am doubtful if it be not the young of *T. wakefieldæ*, Cox.† *T. eucharis* occurred to me on Fitzroy Island, Q. *T. aperta*, Pease, seems closely allied.

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\* Hedley & Musson, these Proceedings (2) vi., 1892, p. 558.

† Hedley, Records Aust. Mus., iii., 1899, p. 153, pl. xxviii., f. 14.

## DITROPIS MACLEAYI, Brazier.

*Cyclophorus (Ditropis) beddomei*, Brazier, Proc. Linn. Soc. N.S.W., i., 1876, p. 113, *non* Blanford, 1869; *C. (D.) macleayi*, Brazier, *op. cit.* ii., 1877, p. 122, *nom. mut.*

(Plate xxxiv., figs. 15, 16, 17.)

One of the types from Cape York (1.9 maj. diam., 1.4 minor diam., 1.2 mm. height) is here shown. The operculum contained in another specimen is not that of *Ditropopsis*. The description is inaccurate regarding the number and position of the keels.

## THEORA FRAGILIS, A. Adams.

A. Adams, P.Z.S., 1855, p. 226.

(Plate xxxiv., figs. 4, 5, 6.)

The shell here figured came from Lane Cove near Sydney; it is 13.5 mm. long and 7 mm. high. Apparently it is the species identified by Angas\* as *Theora nitida*, Gould,† a Japanese species. Gould himself doubted whether his species was not a small and slender form of *T. fragilis*, the type of which is from Moreton Bay, Queensland. In a suite of *Theora* I gathered at Cardwell, Queensland, small specimens exactly like the Sydney shells pass gradually into a shell 18 mm. long, with a sinuate ventral margin. I have not the material to decide whether the Japanese species is identical with the Australian, but under the circumstances it seems best to replace Gould's name by Adams' for the local species.

We are informed by Smith‡ that Adams blundered grossly in describing the dentition of this shell.

## MODIOLARIA SPLENDIDA, Dunker.

(Plate xxxiv., fig. 1.)

Under the name of *Vollsea splendida*, this species was described by Dunker§ as from California, probably an erroneous locality,

\* Angas, P.Z.S., 1867, p. 914.

† Gould, Proc. Boston Soc. Nat. Hist., viii., p. 24, March, 1861.

‡ Smith, Chall. Rep., xiii., 1885, p. 90.

§ Dunker, Proc. Zool. Soc., 1856, p. 365.

for Mr. C. T. Simpson, of the U.S. National Museum, writes to me that he does not know this species as American. Then it was figured by Reeve\* as *Lithodomus splendidus*, from Sydney. Neither the change of genus or of habitat is explained by Reeve. As regards his classification, he was perhaps influenced by Chenu, who figured the species† as *Botula splendida*. Chenu's mistaken reference of this species to *Botula* has been disastrous.

Mörch‡ introduced *Botula* as a subgenus of *Lithophaga* (*Lithodomus* according to Reeve), and named two species under it, *Modiola vagina*, Lam., and *Mytilus fuscus*, Gmelin. In effect Chenu substituted another type and misled Stolickza,§ among others, into placing a wrong interpretation on Mörch's genus.

*M. splendida* is nearly related to *Modiolaria barbata*, Reeve.|| By their hirsute epidermis these differ from the typical expression of the genus.

*M. splendida* seems a rare shell. It is recorded by Whitelegge¶ as found off George's Head, Sydney Harbour, and it has been collected by Mr. J. Brazier at Ballina, N.S. Wales.

#### SPISULA PARVA, Petit.

(Plate xxxiv., figs. 2, 3.)

This common, estuarine and gregarious bivalve varies considerably in size and shape. Several names have been bestowed upon it, and though the synonymy has not before been consolidated it has in part and locally been recognised. The exterior has been several times figured, but the accompanying sketches drawn from a Sydney specimen 29 mm. long are the first to deal

\* Reeve, Conch. Icon. x. *Lithodomus*, pl. v, f. 31, Jan. 1858.

† Chenu, Man. de Conch., Pt. ii., p. 156, fig. 775, 1859.

‡ Mörch, Cat. Conch. Yoldi, p. 55, 1855.

§ Stolickza, Cretac. Fauna South India, iii., pp. 370, 375-6, 1871.

|| Reeve, Conch. Icon. x. *Lithodomus*, pl. v., f. 27.

¶ Whitelegge, Journ. Roy. Soc. N.S.W., xxiii., 1889 (1890), p. 244.

with the hinge. The following in chronological order are the names applied to it:—

1. *Gnathodon parvum*, Petit, Journ. de Conch. iv. 1853, p. 358, pl. xiii., ff. 9, 10; Sowerby, Conch. Icon. xix, 1873, pl. i., f. 6. Moreton Bay, Q.
2. *Mactra rostrata*, Reeve (not of Spengler, 1802, nor of Philippi, 1846), Conch. Icon. viii., 1854, pl. xix., f. 104. Collected by F. Strange in Moreton Bay, Q. Dall unites (Proc. U.S. Nat. Mus. xvii., p. 106) this with the foregoing as *Spisula parva*, Petit.
3. *Mactra corbuloides*, Deshayes, Proc. Zool. Soc. 1854, p. 63; Reeve, Conch. Icon. viii., pl. xix., f. 103. Locality unknown.
4. *Spisula cretacea*, Angas, Proc. Zool. Soc. 1867, p. 909, pl. xliv., f. 6. Port Stephens, N.S.W.
5. *Spisula producta*, Angas, Proc. Zool. Soc. 1867, p. 909, pl. xliv., f. 7. Port Jackson, N.S.W.
6. *Mactra fluviatilis*, Angas, Proc. Zool. Soc. 1871, p. 20, pl. i., f. 31. Hawkesbury River, N.S.W. On the authority of Brazier these three species of Angas are united by Whitelegge (Journ. Roy. Soc. N.S. Wales, xxiii., 1889 (1890), p. 236).

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#### EXPLANATION OF PLATE XXXIV.

- Fig. 1.—Interior of left valve of *Modiolaria splendida*, Dunker.  
 Figs. 2, 3.—Hinges of *Spisula parva*, Petit.  
 Figs. 4, 5, 6.—Different aspects and hinge of *Theora fragilis*, A. Adams.  
 Fig. 7.—Operculum of *Turbo exquisitus*, Angas.  
 Fig. 8.—*Flammulina spaldingi* var. *carinata*, Brazier.  
 Figs. 9, 10, 11.—Various aspects of *Flammulina spaldingi*, Brazier.  
 Fig. 12.—*Tornatellina eucharis*, Brazier.  
 Fig. 13.—*Tornatellina petterdi*, Brazier.  
 Fig. 14.—*Tornatellina mastersi*, Brazier.  
 Figs. 15, 16, 17.—Various aspects of *Ditropis macleayi*, Brazier.  
 Fig. 18.—*Marinula patula*, Lowe.  
 Figs. 19, 20.—Shell and operculum of *Amauropsis moerchi*, Adams & Angas.  
 Fig. 21.—*Scalaria ballinensis*, Smith.  
 Figs. 22, 23, 24.—Different aspects and sculpture of *Philine trapezia*, Hedley.

All enlarged and to various proportions.